CHAPTER ONE
Airport Inventory

CHAPTER ONE - AIRPORT INVENTORY

INVENTORY PROCESS

The inventory is a systematic and comprehensive data collection process which provides background information about the community and an understanding of past and present aviation factors. Airport information has been acquired which pertains to existing airport conditions as well as surrounding airport service area characteristics. An airport inspection was conducted in November, 1996 to note changes to the facility and to collect inventory data. The review included airport manager/pilot interviews, a review of airport historical records, a discussion of the information contained in previous airport plans and studies, local regulations and ordinances, and lease agreements. Photographs of current airport facilities were also produced. The inventory process included:

- A physical site inspection and inventory of airport facilities and services as part of the total assessment of current and historic airport activity levels;
- The collection of socio-economic, tourism, and background information for Willcox and the Cochise County Airport Service Area;
- Coordination with the Arizona Department of Transportation, local and regional planning agencies, and other local, regional and state and federal agencies;
- A review of current airport layout plans, maps and charts;
- Interviews with airport users and local-area business officials to determine current airport use characteristics, general attitudes, and facility needs.

AIRPORT CHARACTERISTICS

Airport Location

Cochise County is located in the southeast corner of Arizona and Willcox is located in the north-central portion of the County. Interstate 10 is the major auto route to Willcox and provides access to Tucson to the west and New Mexico to the east. U.S. Highway 191 provides north/south access through the County and to Mexico to the south.

Figure 1.1 identifies the location of the Cochise County Airport. The airport location is in the north central portion of Cochise County and on the west edge of the City of Willcox, across Interstate 10. Directional signage to the airport from Willcox needs to be improved and currently, there is no directional signage from Interstate 10. The airport fee simple property is approximately 960 acres and the airport elevation is 4,181 feet. The airport reference point is north latitude 32°14.65' and west longitude is 109°53.64'.

Airport Ownership/Management

The Cochise County Airport is one of two county-owned airports and the administration of the facility is conducted through the County Facilities Department. Daily operational functions are conducted by the fixed base operator (FBO) staff, with services available 24 hours daily; however, posted hours are 7:30 a.m. to dusk Monday through Friday, and 8:00 a.m. to 5:00 p.m., Sundays and holidays.

Current Airport Role

Currently, the *Arizona State Aviation Needs Study* and the *National Plan of Integrated Airport Systems (NPIAS)* classifies the Cochise County Airport as a General Utility, Stage II facility. Using criteria from *FAA Advisory Circular 150/5300-13, Change #5, Airport Design*, the airport has an existing Airport Reference Code (ARC) of B-II. (See Table 1.8 for explanation of codes.) The airport role and classifications have been accepted by ADOT and FAA. Airport need is based on historic, current and anticipated future activity as identified in the Plan.

Current Airport Activity

At present, the Cochise County Airport has 24 fixed-wing based aircraft: 22 single-engine and 2 twin- engine, 2 helicopters, and experiences about 7,000 annual operations. The airport is used by many different types of aircraft including fixed wing, rotary aircraft, gliders, and blimps. The information gathered during the study identified 30 business and government agencies using the airport. Table 1.1 shows these users.

Figure 1.1
Airport Location Map

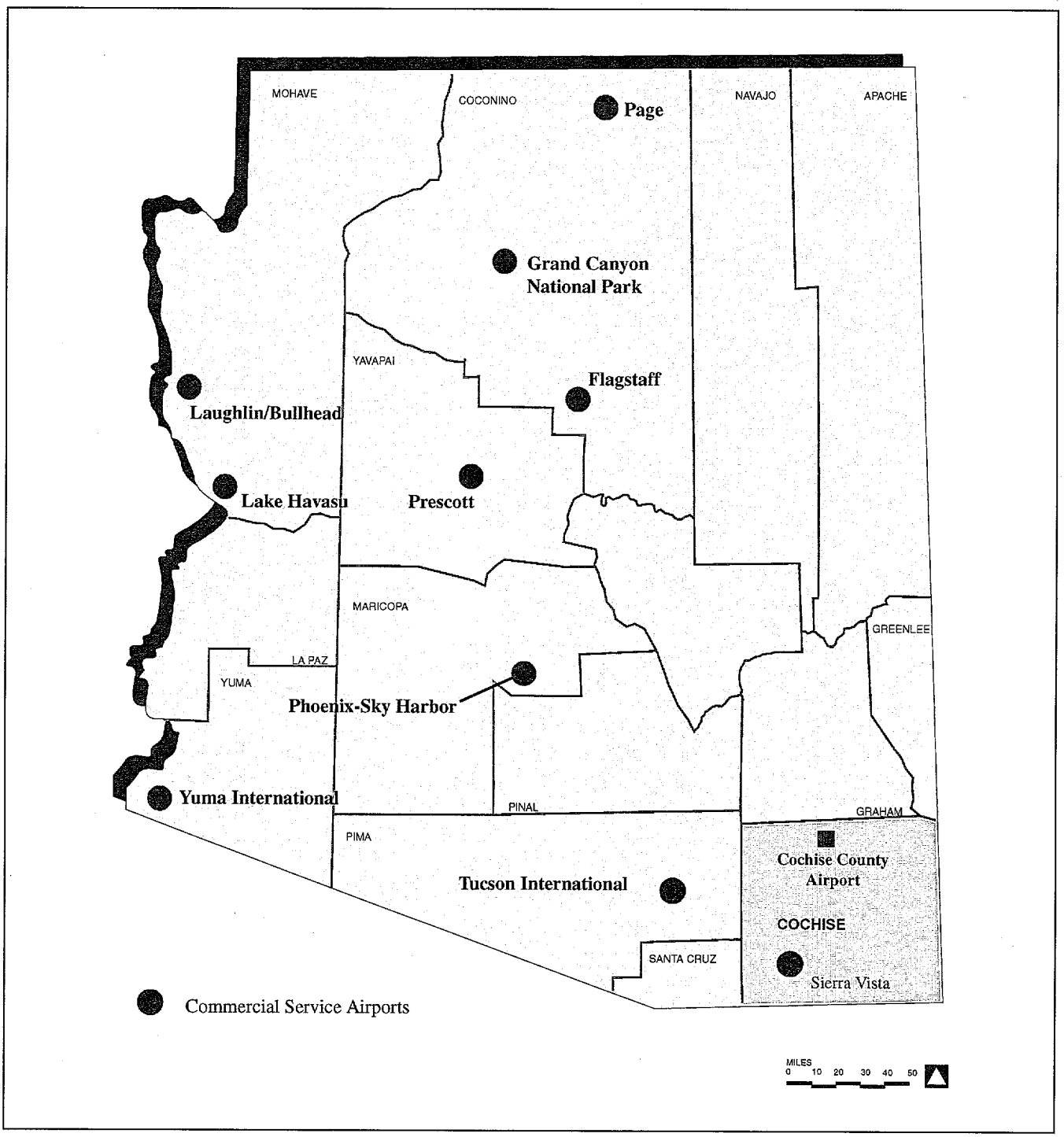


Table 1.1 Existing Business and Government Users Cochise County Airport	
Bank One	Arizona Dept. of Transportation
Northern Cochise Community Hospital	Inter Ag Service, Inc.
Pima County Sheriff (prisoner exchange)	Southern Pacific Pipeline
Ostrich Valley Ranch	Rip Griffin
Pacesetter (ostrich ranch)	Greer Farms
Briggs Ostrich Ranch	Cochise College
El Paso Natural Gas	U.S. Border Patrol
Valley Telecom	Arizona Dept. of Public Safety (Highway Patrol)
UMC Air Care	L.G. Sheppard
Air Evac (Critical Air Medicine)	Fertozpma
Arizona Game & Fish	Goodwin International, Inc.
U.S. Dept. of Agriculture (predator control)	Super 8 Motels
U.S. Customs	Grapevine Ranch

AIRFIELD CONFIGURATION AND FACILITIES

Figure 1.2 depicts the airport facility map for the Cochise County Airport. The airport has one active runway, a parallel taxiway system, and terminal area. A crosswind runway exists; however, it has been closed.

Table 1.2 lists the existing airfield facilities and equipment, along with a description and estimated condition rating based on visual inspection. Items that have been rated good, fair, or poor are done so to give the reader an idea as to the relative condition of a specific facility. Good is a condition that should remain stable during the early portion of the planning period and is not in need of immediate attention; fair is a condition that will need some repair to remain stable; while poor rates as needing replacement or reconstruction very soon.

Runway 03-21 is a non-precision instrument runway with dimensions of 6,095' x 75' and has an estimated 50,000 pound pavement strength for single-wheel-gear aircraft and a 75,000 pound pavement strength for dual-wheel-gear aircraft. Runway 03-21 is lighted with medium intensity runway lights. The closed runway was designated as 14-32.

The airport has two taxiways. One is a connecting taxiway between Runway 03-21 and the apron area that was a portion of the parallel taxiway that served closed Runway 14-32. The second is a full parallel taxiway for Runway 03-21.

Table 1.2
Existing Airfield Facilities
Cochise County Airport

Airfield Item	Description and Size	Condition
Runways		
Runway 03-21	6,095' x 75' - Asphalt	Fair
Edge Lighting	Medium Intensity Runway Lights (MIRL)	Fair
Threshold Lighting	Lighting (Green/Red)	Fair
Pavement Markings	Visual	Poor
Visual Descent Indicators	None	--
Lighting Approach Aids	None	--
Taxiways		
Taxiway Alpha (Parallel)	Parallel taxiway (50' wide)	Poor
Taxiway Bravo (Access)	Access taxiway (50' wide)	Fair
Additional Airfield Items		
Aircraft Apron	6,700 S.Y. - 10 tie downs (Paved)	Fair
Airport Rotating Beacon	East of terminal building	Good
Lighted Wind Cone/Segmented Circle	Along access taxiway	Fair
Wind Indicator	West of Runway intersection	Fair

Source: Bucher, Willis & Ratliff Corporation, Field Inspection: November, 1996

TERMINAL AREA FACILITIES

The terminal area consists of buildings and storage structures for aircraft operators as well as for public accommodation. The terminal area contains an administrative office area, conventional hangars, aircraft apron area, fuel facility, airport and terminal lighting equipment, a public automobile parking lot, and an airport access road.

At present, the airport offers maintenance and support service to general aviation aircraft ranging from single-engine airplanes to more sophisticated turbine aircraft. Sale of fuel is the responsibility of the FBO. The services available at the airport are as follows:

- Aviation fuel and oil sales;
- Aircraft storage and tie-downs;
- Pilot flight planning and briefing area;
- Telephone;
- Aircraft maintenance and repairs;
- Weather reporting station (RCO);
- Gifts and snacks.

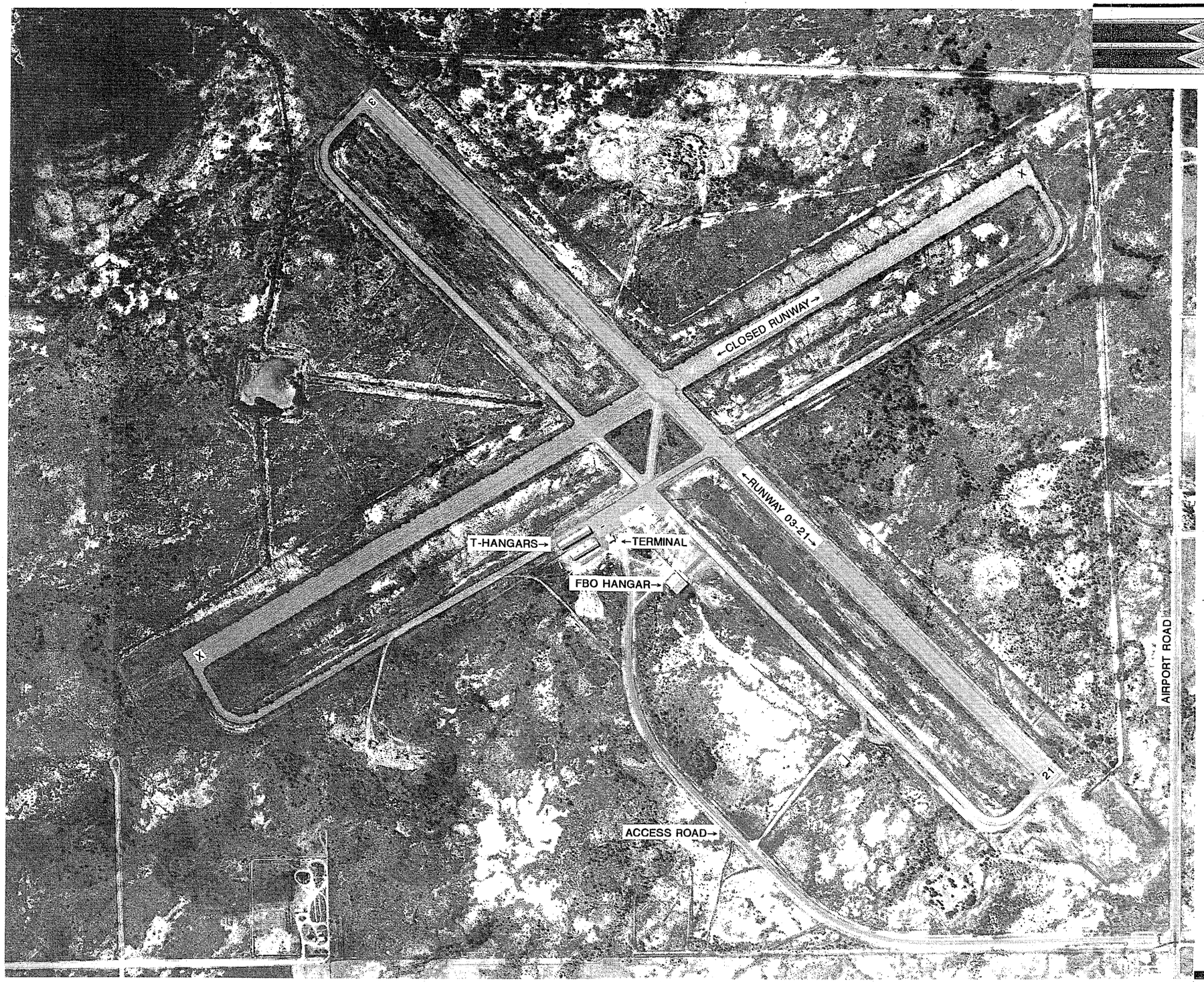


FIGURE 1.2
AIRPORT FACILITY MAP

Airport Terminal Building

The terminal building contains an office area which is used by the fixed base operator (FBO) for the daily management and operation of the airport. The terminal facility includes several general-use provisions including a public-use telephone, restrooms, pilot waiting, and public lounge. Overall, the terminal building is considered in good condition, and occupies a floor space of about 1,300 square feet. As a public use facility, the airport terminal building is required to comply with the American Disabilities Act. Areas in which the terminal is deficient to ADA include designated auto parking, building entrance ramps, and restroom facilities are not clearly marked.

Airport Hangars

The County owns all hangars at the airport except for one conventional hangar. It is on a ground lease to a private individual. Table 1.3 identifies the hangar type, aircraft spaces, and condition and approximate size.

Table 1.3
Airport Hangar Facilities
Cochise County Airport

Type	Spaces	Condition	Size
FBO Conventional Hangar	5	Good	110' x 100'
Leased Conventional Hangar	1	Good	40' x 60'
T-Hangar	6	Fair	35' x 180'
Shade Hangar	10	Poor	50' x 220'

Aircraft Apron Areas

The terminal apron is 150' x 400' and contains approximately 6,700 square yards of concrete and asphalt pavement. At present, there are ten (10) tie-down spaces with painted parking areas and ropes for on-demand aircraft use on the concrete portion of the apron. These parking areas are located west of the terminal building providing convenient access to fueling services and pilot access to the terminal building. There are six tie-downs adjacent to the apron in the grass. The concrete area is used primarily for based aircraft and is 6" of concrete on 6" of base material. Estimated weight bearing capacity is 30,000 lbs. single wheel gear. The asphalt portions of the apron are rated at the same strength as the runway.

Aviation Fuel Storage

Table 1.4 lists the present fuel capabilities at the airport. The fuel farm area for aircraft is located about 150 feet to the north of the terminal building. Presently, the airport has both 100LL and jet fuel with a total storage capacity of 20,000 gallons. The underground tanks will need to be replaced prior to 1998 to conform to updated EPA regulations. The County is pursuing new tanks to comply to the new regulations.

Table 1.4
Airport Fuel Facilities
Cochise County Airport

Fuel Dispensing Unit	Capacity	Monitoring
Underground AvGas fuel storage tank (100 LL) (installed 1968)	10,000	None (tested annually)
Underground Jet-A fuel storage tank (installed 1968)	10,000	None (tested annually)

Source: Bucher, Willis & Ratliff Corporation; Airport Site Inspection, November, 1996.

Automobile Access and Parking

Airport access to Cochise County Airport from Willcox is on Airport Road and across Interstate 10. Additional access from Interstate 10 is from the Taylor Road exit. The interior access road is asphalt and in good condition. Currently, there is no paved parking; however, there is adequate space available for parking in the crushed gravel lot adjacent to the terminal building. There is no designated area for handicapped parking. Existing signage identifying the airport location should be improved.

Airport Utilities and Maintenance Services

Table 1.5 provides a listing of utilities and services offered at the Cochise County Airport. City water and sewer lines are available at Ironwood Drive approximately 2.5 miles from the airport. There are no plans for the extension of these lines to the airport by the City. Existing septic facilities are adequate as no problem has arisen due to current usage. The septic facilities could be expanded if necessary to meet increased demand. The septic tank and lateral fields are located 100' east of the T-hangar and near the entrance gate to the hangar area.

Table 1.5 Airport Utilities Cochise County Airport	
Utility/Service	**Utility/Service Provider**
Electricity	Sulphur Springs Valley Electric Coop
Sewer System	Septic Tank
Telephone Service	U.S. West
Waste/Garbage Removal	Private collection
Fire Protection	Willcox Rural Fire District
Water	On-site well

Source: Bucher, Willis & Ratliff Corporation; Airport Site Inspection, November, 1996.

NAVIGATIONAL AIDS AND EQUIPMENT

En-Route Electronic Navigational Aids

Figure 1.3 depicts the aeronautical system and navigational aids (NAVAIDS) for the Cochise County area. NAVAIDS allow for arrivals and departures using point to point guidance. Cochise County Airport has a non-precision instrument GPS approach which is a system of electronic ground based and satellite instruments. The use of this equipment depends, in part, on the ratings held by the pilot and airborne equipment.

Area Airspace

The airspace surrounding the Cochise County Airport is Class E, which is airspace subject to terminal control, and extends from 700 feet up to, but not including 18,000 feet mean sea level. Uncontrolled Class G airspace extends from the ground surface to 700 feet. A standard Class E transitional area has been established around the Cochise County Airport in conjunction with the instrument approach procedures. The transition area is designated to contain instrument flight rule operations in controlled airspace (above 700 feet) during portions of the terminal operation while transitioning between the terminal and en-route environments.

Another category of controlled airspace is designated *Special Use.* Special use airspace consists of that airspace where limitations are imposed upon aircraft operations usually because of military activity. Special use airspace is classified as Restricted Areas, Military Operation Areas, and Prohibited Areas. Military Operating Areas (MOA) are also

associated with military training, but does allow through flight when in use. The Cochise County Airport is located to the south of the Jackal and Morenci Military Operating Areas (MOA) and north of the Tombstone MOA.

Terminal Area Control and Communications

Non-precision approach procedures at Cochise County Airport are based on satellites and called Global Positioning System (GPS). Aircraft with an on-board receiver can use the satellite system for enroute and approach procedures.

The controlling Flight Service Station (FSS) for the Cochise County Airport is the Prescott FSS located on the Prescott, Arizona Airport. The FSS can be reached over one of the nearby VOR stations for flight advisory communications (weather and flight planning) and other ancillary types of flight information. The Common Traffic Advisory Frequency (CTAF) for pilot-to-airport communications at the Airport is a UNICOM radio operating on a frequency 122.8 Mhz.

Airport Lighting/Marking

Various types of airfield lighting are available, providing visual identification of the facility during daylight and night operations, guidance during taxiing at night, and identification of the airport during adverse weather conditions. These include:

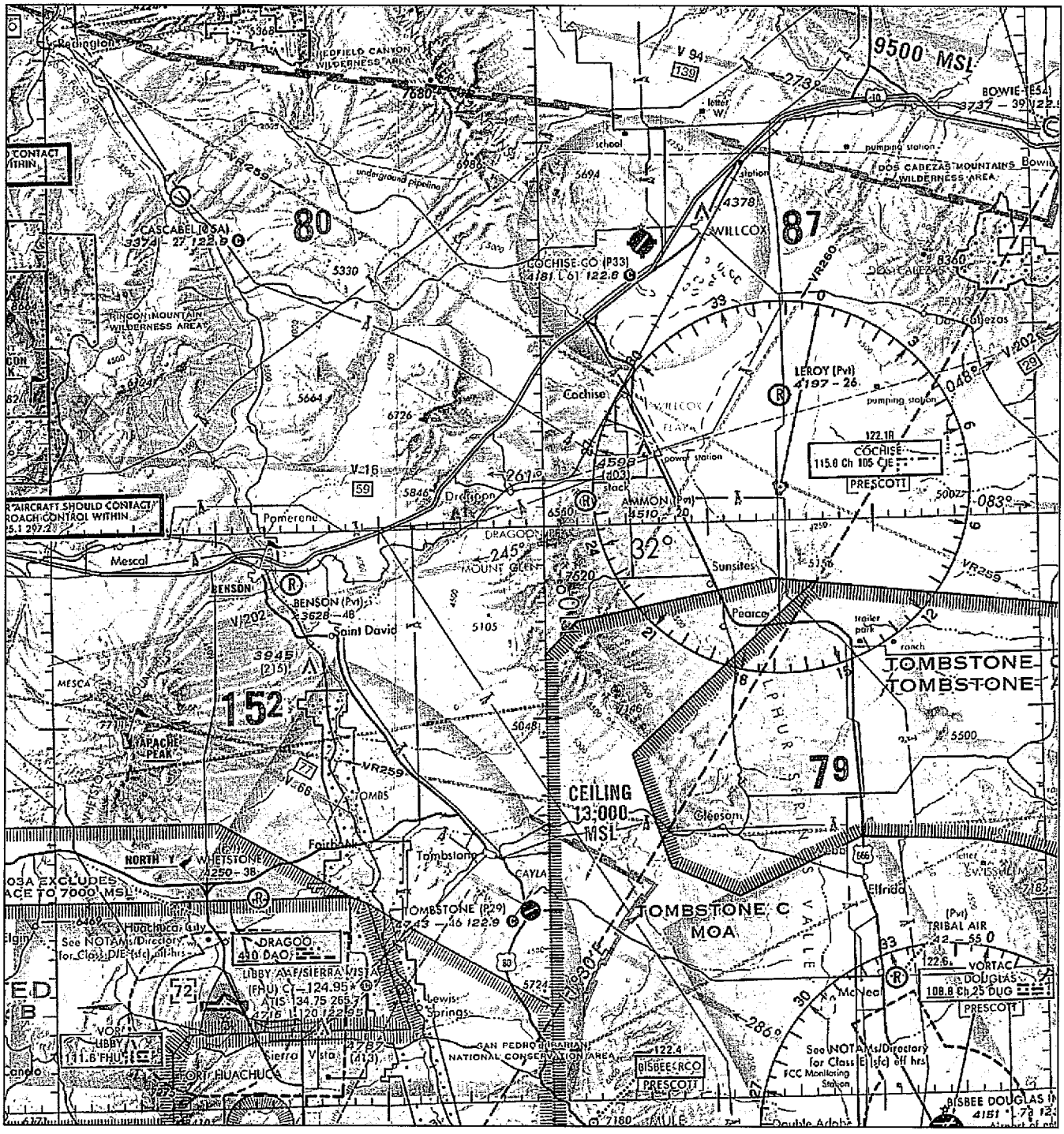
Airport Lighting and Identification: A rotating beacon operates during night and low visibility conditions. The beacon at Cochise County Airport is located east of the terminal building and identifies the location and presence of the airport. The beacon is equipped with an optical system that projects two clockwise rotating beams of light, one green and one white, sweeping 180 degrees apart.

Threshold Lighting: Threshold lights are installed at the immediate ends of Runways 03-21 to indicate the approach and departure direction. The light posts contain a two-sided lens consisting of a red and green color. The green half of the lens faces approaching aircraft and indicates the beginning of the usable runway. The red half faces the aircraft during takeoff, indicating the end of the usable runway.

Runway Lighting/Marking: Runway 03-21 is equipped with Medium Intensity Runway Lighting (MIRL). The MIRL's are attached to a photo cell and come on at dusk. Runway 03-21 is marked as a visual runway, which includes a centerline stripe, and threshold numbers.

Airport Master Plan

Figure 1.3
Sectional Aeronautical Chart



Visual Guidance Indicators: There are no visual approach slope indicators on Runway 03-21.

Taxiway Lighting: The taxiways are not lighted. There are, however, blue edge lights at each taxiway where they intersect the runway.

Airport Signs: The airport does not have airfield signs to provide taxiway and/or runway guidance.

Remote Communication Outlet (RCO): The RCO can be used by pilots for advisory (en-route clearances, issuing departure authorizations, and acknowledging instrument flight rules cancellations or departure/landing times) whenever the aircraft is below the coverage of the primary air/ground frequency. The RCO can be reached from the Cochise VOR station.

AIRPORT LAND AND AIRSPACE USE

The principal land use factors to be considered in airport land use planning and zoning include the runway protection zone (RPZ) areas, natural and manmade obstructions to flight, aircraft noise, and potential commercial, industrial, and residential development in the vicinity of the airport.

Cochise County Zoning and Surrounding Land Use

The Cochise County Airport has approximately 960 acres in fee simple, is in a rural location, and most surrounding land has been zoned RU-4. Cochise County provides land use jurisdiction over and around the airport. The RU-4 designation is residential with a 4-acre minimum lot size. A small area designated by the county as TR-36 (36,000 s.f. lot size minimum) contains several mobile home sites and is on the north side of the airport. County planning staff has indicated that the airport should be zoned PD-2. Federal Aviation Regulations Part 77 airspace ordinances have not been adopted by the County for this airport. It is encouraged that the County adopt Part 77 ordinances for all airports within their land use jurisdiction.

Current levels of aircraft noise do not generate a 65 DNL contour which is what FAA has determined as the threshold for noise abatement measures. Additional noise analysis is included in Chapter 6.

Airport Land Use

The principle airport land use factors include the Runway Protection Zones (RPZ), Runway Safety Areas (RSA), and the Object Free Areas (OFA). Airspace requirements are determined by use of Federal Aviation Regulations, Part 77 criteria. Currently there are no land uses on airport property that hinder airport operations.

FAR - Part 77 Imaginary Surfaces

Airports should be located so that surrounding airspace is free and clear of obstructions that could be hazardous to aircraft on takeoff or approach paths or when operating in the airport vicinity. It is, therefore, necessary to maintain the surrounding airspace free from obstacles by preventing the installation, development, or growth of obstructions to airspace that could cause the airport to become unusable. The regulations for the protection of airspace in the vicinity of airports are established by the designation of imaginary surfaces, which identify the maximum allowable heights of objects. The imaginary surfaces are established in the Federal Aviation Regulations, Part 77, and are depicted in Figure 1.4.

Runway Safety Areas (RSA)

The Runway Safety Area (RSA) is a two-dimensional area centered on the runway centerline. It is used to reduce the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. Both RSAs for the existing Runway 3-21 are contained on airport property.

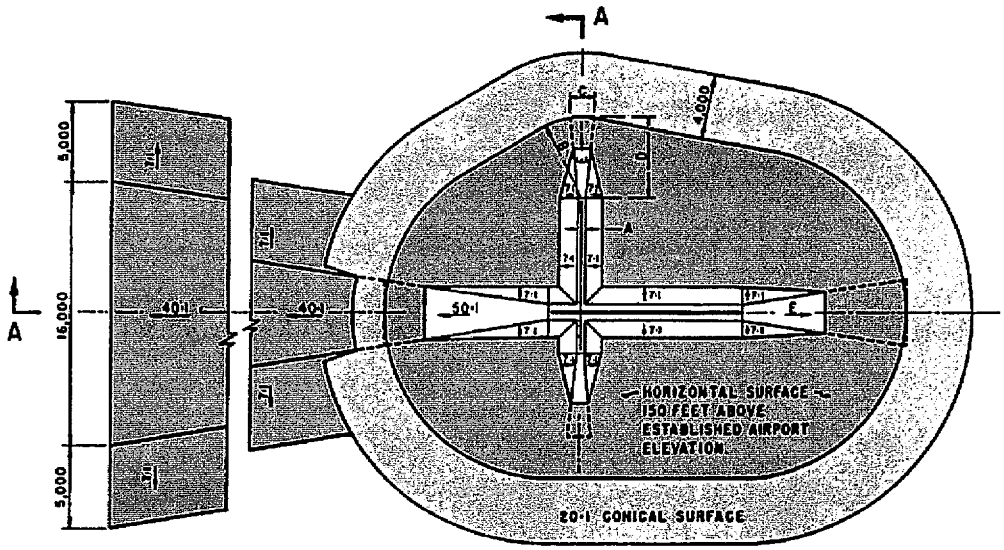
Object Free Areas (OFA)

The Object Free Area (OFA) is a two-dimensional area centered on the runway centerline which must be cleared of objects except those located for air navigation or aircraft maneuvering. Both OFAs for Runway 3-21 are contained in fee simple within the existing airport property boundary.

Runway Protection Zones (RPZ) and Approach Slopes

Table 1.6 indicates the existing configuration of the runway protection zone and approach slope information for each runway. Both runway-ends have runway protection zones (RPZ) which define the land area underneath the aircraft approach paths.

Figure 1.4
Part 77 Surfaces



DIM	ITEM	DIMENSIONAL STANDARDS (FEET)					
		Visual Runway		Non-Precision Instrument Runway			Precision Instrument Runway
		A	B	A	A: C	A: D	
A	Width of primary surface and approach surface width at inner end.	250	500	500	500	1,000	1,000
B	Radius of horizontal surface	5,000	5,00	5,000	10,000	10,000	10,000
		Visual Approach		Non-Precision Instrument Approach			Precision Instrument Approach
		A	B	A	A: C	A: D	
C	Approach surface width at end	1,250	1,500	2,000	3,500	4,000	16,000
D	Approach surface length	5,000	5,000	5,000	10,000	10,000	*
E	Approach slope	20:1	20:1	20:1	34:1	34:1	*

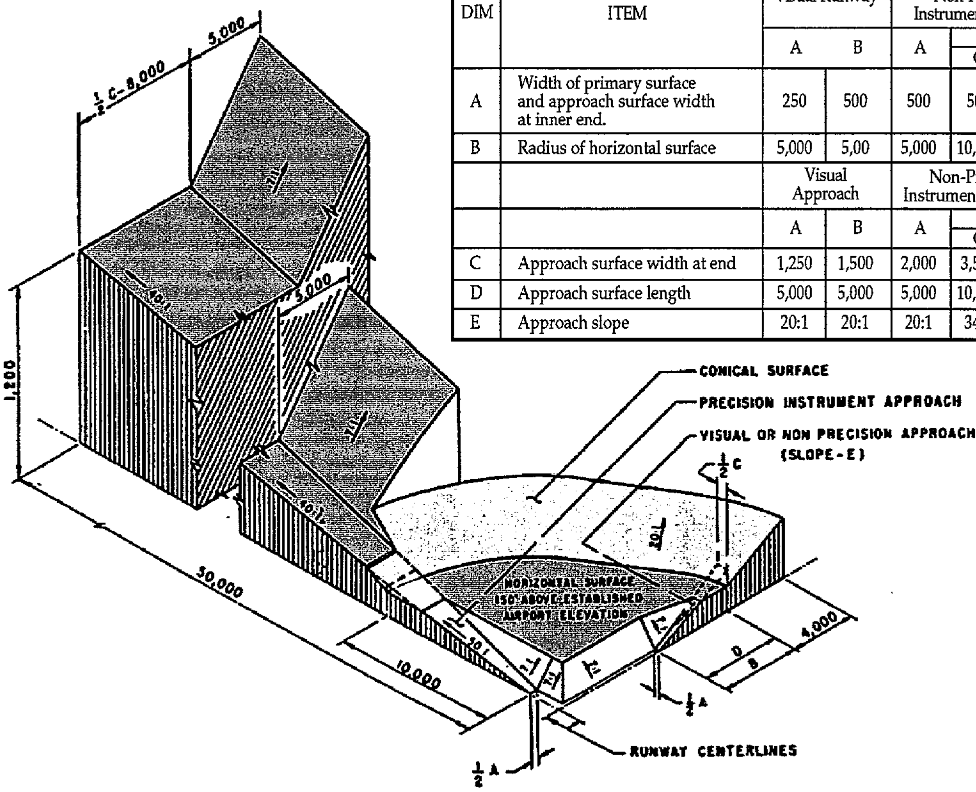


Table 1.6
Existing Runway Protection Zone and Approach Slope Data
Cochise County Airport

Runway	Approach Slope	RPZ and Approach Surface Dimension	Runway Classification	Existing RPZ Easement Area
03	20:1	1,000' x 500' x 700' 5,000' x 500' x 2,000'	Non-Precision	All on Airport Property
21	20:1	1,000' x 500' x 700' 5,000' x 500' x 2,000'	Non-Precision	Need to acquire approx. 2.4 acres

Source: Bucher, Willis & Ratliff Corporation - Airfield Maps and Field Inspection, November, 1996

GENERAL AVIATION ACTIVITY

General Aviation Function and Role

Aviation is a vital element of the overall national transportation network. Convenient, safe and rapid accessibility is one of the single most important variables affecting community growth and economic vitality. The benefits which accrue from various types of general aviation activity are specific in nature to the role the aircraft has to its owner (business applications, executive transport, crop dusting, hospital use, aerial observation, etc.) and the direct and indirect role the aircraft has to the community (charter service, emergency flights, police patrolling, search and rescue activity, etc.).

General aviation includes every type of civilian aircraft flying other than certified air carriers and military operations. While much of the public does not participate directly in general aviation, its indirect benefits are substantial and widespread throughout the community.

Airport Service Area

Airport service areas do not limit themselves to traditional boundaries such as city limits, county lines, or even state lines. An airport can serve the county in which it is located and significant parts of surrounding areas. The Cochise County Airport's service area is shown in Figure 1.5.

The primary factors considered in the determination include the location of the particular airport, its relationship to surrounding airports, and the capabilities and services offered by the surrounding airports. The principle is that the larger the airport and more services offered at an airport, the larger the service area. Service areas are determined by plotting the distance that it takes to travel 30 minutes (25 miles) along major roadways. This

represents a reasonable ground travel time between the airport and business or home (FAA Order 5090.3B). Once these areas are established, professional judgement is used to reconcile the differences between ground travel time and the drawing power of the airport and its services.

Summary of Historic Based Aircraft and County Registered Aircraft

Table 1.7 shows the number of based aircraft and county registered aircraft. There are currently 24 fixed-wing based aircraft at the Cochise County Airport, of which 22 are single-engine aircraft, 2 are multi-engine piston aircraft, and 2 helicopters.

The airport has experienced moderate fluctuations in the based aircraft *mix* since 1980. The greatest number of based aircraft was 27, which occurred in 1990. Single-engine based aircraft have ranged from 22 to 25, and multi-engine ranged from 1 to 2 between the years 1980 and 1995.

Table 1.7
Historic Aviation Activity - Based Aircraft
Cochise County Airport

Year	Single-Engine Aircraft	Multi-Engine Piston	Multi-Engine Turbine	Helicopter	Total Based Aircraft	Registered County Aircraft
1980	20	2	0	0	22	176
1985	22	1	0	0	23	206
1990	25	2	0	0	27	181
1995	22	2	0	0	24	NA
Existing	22	2	0	2	24	NA

Source: FAA *Airfield Inspections 5010 Forms*/State Aviation Needs Study

Historic Summary of Annual Aircraft Operations

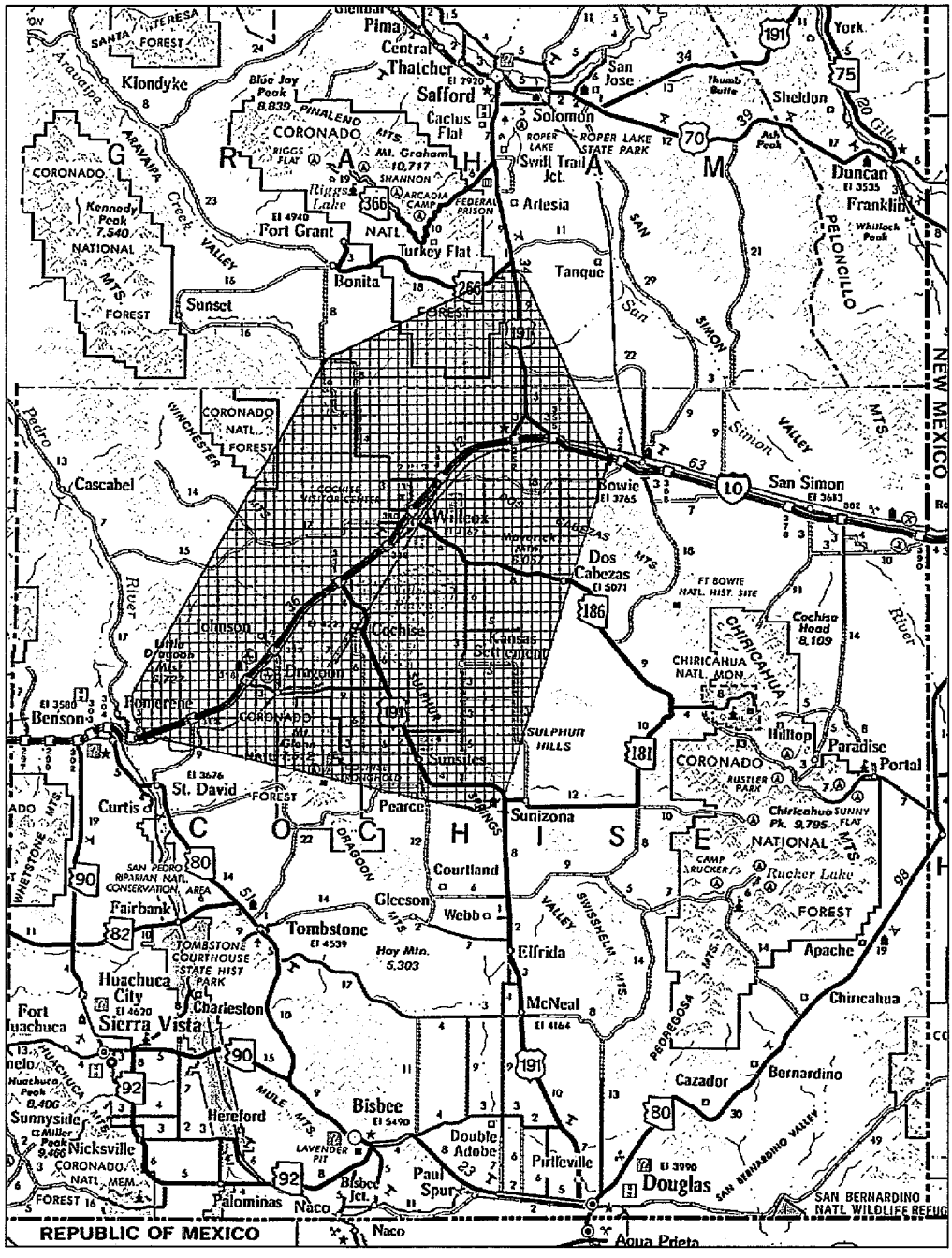
Table 1.8 shows local, itinerant, air taxi, and military operations between 1980 and 1996. Aircraft operations are used to gauge the level of activity at an airport. The source of these figures have been accumulated primarily from *F.A.A. 5010 Airfield Inspection Forms.*

In 1996, estimated annual operations totaled 7,000. Between 1980 and 1990, operations fluctuated between 6,100 and 7,000. 1995 has been the most recent active year. Overall, the total operations have increased, with the most significant increase period occurring from 1990 to 1995.

Airport Master Plan

= Service Area

Figure 1.5
Airport Service Area



There are several different types of aircraft currently operating at the airport. These include small single-engine piston aircraft which are predominantly based at the airport, but also by itinerant users, such as the Beechcraft King Air and Cessna Citation. Military operations at Cochise County have been limited to approximately 500 operations annually.

Table 1.8
Historic Aviation Activity - Annual Aircraft Operations
Cochise County Airport

Year	Local Operations	Itinerant Operations	Air Taxi Operations	Commuter Operations	Military Operations	Total Operations
1980	3,713	2,476	0	0	0	6,189
1985	3,749	2,714	0	0	0	6,463
1990	2,952	3,720	332	0	0	7,004
1995	4,120	4,800	0	0	500	9,420
Existing	3,021	3,800	0	0	500	7,321

Source: *FAA 5010 Airfield Inspection Forms*

Existing Aircraft Mix

Table 1.9 shows the present mix of aircraft using the Cochise County Airport. The first classification is by aircraft approach category, and the second by the airplane design group. The *Aircraft Approach Category* is classified from A to E, and the *Airplane Design Group* is classified from I to IV. Combined, the two classifications produce an Airport Reference Code (ARC) which yields specific characteristics about the type of airplane that the airport is eventually designed to accommodate.

The current aircraft mix activity is determined in accordance with Airport Reference Code design groups. The mix was based on airfield site-observations, pilot and business interviews and a review of historic fuel records.

Table 1.9
Existing Aircraft Mix by FAA Design Grouping (Operations)
Cochise County Airport

Aircraft Approach Category - This classification is based on the final approach speed (knots).		
Aircraft Category	**Aircraft Approach Speeds**	**Percent Activity**
Utility Aircraft		
Category A	Less than 91 knots	95.0%
Category B	91 knots or more, but less than 121 knots	4.5%
Transport Aircraft		
Category C	121 knots or more, but less than 141 knots	0.5%
Category D	141 knots or more, but less than 166 knots	0%
Category E	166 knots or more	0%
Airplane Design Group - This classification groups airplanes by wingspan.		
Airplane Design Group	**Wingspan**	**Percent Activity**
Group I	Up to, but not including 49 feet (15 meters)	95%
Group II	49 feet (15 m), but not including 79 feet (24 meters)	5%
Group III	79 feet (24 m), but not including 118 feet (36 meters)	0%
Group IV	118 feet (36 m), but not including 171 feet (52 meters)	0%
Group V	171 feet (52 m), but not including 214 feet (65 meters)	0%
Group VI	214 feet (65 m), but not including 262 feet (80 meters)	0%

Source: Bucher, Willis & Ratliff Corporation Field Inventory, Aircraft and Operations List.
Source: FAA *Advisory Circular 150/5300-13, Change #4, Airport Design*.

LOCAL CLIMATE

Weather characteristics are used in determining runway length requirements, crosswind coverage, and the optimum runway orientation. In addition, activity during instrument meteorological conditions (IMC) provides an indication as to critical weather occurrences. These factors are expressed as the percent of time visibility is impaired due to cloud coverage, and to establish the need based on FAA criteria for the installation of navigational and lighting aids.

Climatic Analysis

Climate information for the area is available from the National Climate Data Center. The weather pattern is typical for the southeast United States and the Arizona area. The

altitude of the area plays an important role in the climate. Annual rainfall is approximately 12 inches and snowfall is in trace amounts. The mean maximum temperature for the hottest month occurs in June and is 95°.

Runway Wind Data

Area wind characteristics were assessed to determine the operational impact of winds on runway orientation. Wind velocity data (speed *and* direction) have been recorded and assembled using the wind analysis feature of the *FAA 150/5300-13 Version 4.2, Airport Design* computer program. The data was obtained from the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center using Tucson, Arizona where wind and weather analyses were performed for the period 1986-1995. The wind analysis is shown in Chapter 3 - Facility Requirements. It should be noted that the Tucson Windrose does not meet "level terrain" criteria and shouldn't be used exclusively for airport planning/construction at Cochise County Airport. It is recommended that an additional wind study be completed at the airport for a minimum of one year.

SOCIO-ECONOMIC CHARACTERISTICS

Economic Benefits

Whether large or small, an airport serves as a basis for employment, a purchaser of goods and services, an inducement for industrial development, and an important link in connecting the community with the national transportation system. An adequate airport can help attract new and retain industry and business in the community. Although the presence of an airport is usually not the overriding reason a community is selected by an industry, if all other things are equal, a community with an airport will have a distinct advantage over a community without an adequate airport.

General aviation has contributed to manufacturing and service industries locating in smaller communities. Typically, smaller communities offer lower corporate and residential tax rates, closer access to raw materials and natural resources, and a superior working environment. For companies which use or own general aviation aircraft, it provides a time-saving link for corporate travel, which helps the growth of enterprises in communities such as Willcox. Three types of economic impacts can be attributed to aviation activity:

Direct Impacts: Direct impacts of airports are created by the flow of dollars. These include the construction of the airport, and future renovation, reconstruction, and investments for private construction of hangars. Leased areas

will provide tax revenues for the County. Other services and items offered include, fuel, utilities, aircraft supplies, and services.

Indirect Impacts: Indirect impacts are the value of economic activities that occur off-site. Indirect impacts include the value of general aviation in terms of benefits resulting from business travel, attraction of people and business, and the transportation and time-saving benefits generated by a local airport. Other activities include services provided by restaurants, hotels, and retail establishments that serve the air travel.

Induced Impacts: Induced impacts result by applying appropriate multipliers to direct and indirect impacts. An example, as a general aviation mechanic spends a paycheck, it gets distributed through the community several times and causes the "multiplier" effect.

Regional Economic Indicators

The historic and future aviation activity levels depend on the economic stability and level of growth and development within the airport's area of influence. Population, employment rates, and per capita income provide insight into the region's economic make-up.

Studies have shown that increases in registered and/or based aircraft in the United States have been closely tied to population, income levels, industrial growth, and local business trends. The following socio-economic information will be used in the forecasting section to determine the baseline forecast figures used to project future levels of based aircraft and annual aircraft operations.

Employment

Table 1.10 shows historical Arizona employment data for state of Arizona and Cochise County. The industries employing the majority of workers include construction, agriculture, government, mining, wholesale, and retail trade. The increase in employment indicates that population growth and per capita income increases will be supported by economic opportunities in the future.

Table 1.10 Arizona Historic and Forecast Employment		
Year	Arizona	Cochise County
1980	1,117,020	27,483
1990	1,756,297	42,502
2000 Forecast	1,921,300	48,114

Source: Arizona Department of Economic Security

Population

Table 1.11 shows existing and forecast city, county and state population levels based on U.S. Department of Commerce data. Cochise County has experienced a 2.3 percent annual population increase between 1970 and 1990. The City of Willcox has experienced a 1.0 percent annual increase over the same period. The 1990 population for Cochise County was 97,624 and 3,122 for the City of Willcox. Alone, Willcox accounted for about 3.2 percent of the total county population in 1990.

The statistics show that Willcox is expected to increase in population, but the City will not grow as fast as Cochise County. The same comparison can be made with Cochise County and Arizona. Regardless of the rate of population growth, an increase in population is a positive economic indicator, which, in turn, has a good affect on aviation.

Table 1.11 Historic and Forecast Population Levels Cochise County Airport Region					
Year	Cochise County Population	Willcox Population	Willcox as % of Cochise County	State of Arizona Population	Cochise as a % of Arizona
Historic Population					
1970	61,918	2,568	4.1%	1,770,900	3.6%
1980	85,686	3,243	3.8%	2,175,215	3.2%
1990	97,624	3,122	3.2%	3,665,228	2.6%
Current	116,725	3,423	2.9%	4,595,375	2.5%
Forecast Population					
2000	121,825	3,558 *	2.9%	4,961,950	2.4%
2005	129,675	3,761 *	2.9%	5,553,825	2.3%
2010	137,025	3,974 *	2.9%	6,145,125	2.2%
2015	143,800	4,170 *	2.9%	6,744,800	2.1%
2020	150,000	4,350 *	2.9%	7,363,625	2.0%

Source: Arizona Department of Economic Security, U.S. Census Bureau. * Forecast - 1997 percent of Cochise County.

Per Capita Income

Studies conducted by the U.S. Department of Commerce, and confirmed by U.S. Department of Transportation studies have demonstrated that the likelihood of taking a trip by air increases as family income increases. Accordingly, the propensity to own a general aviation aircraft has been shown to be directly correlated with the amount of "real dollar" disposable family income.

Table 1.12 provides the historic per capita income (PCI) for Cochise County based on real dollar and current dollar values. Historically, per capita income for Cochise County has been fairly consistent, averaging a 6.4 annual percent growth rate between 1970 and 1990, and 1.1 percent over the same period for current dollar value. The PCI and Current Dollar Value increases show an overall stable economy with an increasing base, which also is an important factor for aviation.

Table 1.12
Per Capita Income
Cochise County

Year	Per Capita Income (Real)	Deflator	Current Dollar Value[1]
1975	4,717	49.2	9,587
1976	5,058	52.3	9,671
1977	5,332	55.9	9,538
1978	5,938	60.3	9,847
1979	6,218	65.5	9,493
1980	7,081	71.7	9,876
1981	7,738	78.9	9,807
1982	8,139	83.8	9,712
1983	8,766	87.2	10,053
1984	9,408	91.0	10,338
1985	10,053	94.4	10,649
1986	10,491	96.9	10,826
1987	10,919	100.0	10,919
1988	11,539	103.9	11,106
1989	11,952	108.5	11,016
1990	12,747	113.3	11,251
1991	13,428	117.6	11,418
1992	14,274	120.9	11,806
1993	14,509	123.5	11,748

Source: U.S. Department of Commerce and Economic Report of the President, Feb., 1995.
[1] Dollar Value based upon 1987.

Travel Industry Overview

The travel industry in the United States is the country's third largest retail sales industry. According to the *U.S. Travel Data Center*, during 1995 domestic and international travelers spent $421.5 billion, a 5.8 percent increase over the previous year and nearly 6.5 percent of the U.S. Gross Domestic Product. The use of goods and services of transportation carriers, travel agencies, commercial accommodations, restaurants, campgrounds, and attractions is predicted to grow at an 8 percent rate through the end of the decade. Tourism will be the leading retail business employer by the year 2000.

Currently, the travel and tourism industry directly employs over 6.6 million individuals. Travel industry employment constituted 5.7 percent of total U.S. nonagricultural employment during 1995. Foodservice employment grew almost 4 percent in 1995, continuing to provide the most jobs in the industry at 2 million. Lodging again ranked second with over 1.1 million employees, a 1.6 percent increase over 1994. Travel-generated employment in general retail grew substantially, 3.6 percent, to 312,000 jobs in 1995. Jobs directly generated by domestic traveler expenditures accounted for 85 percent of total travel-generated employment, while international travelers generated approximately 970,000 jobs.

The Data Center's *National Travel Survey* indicates the jobs were generated domestically by U.S. residents who took over 1.2 billion person trips (traveling 100 miles or more) in 1995, up 3 percent from 1994. Pleasure trips accounted for 809.5 million of these trips, while business travel generated 207.8 million trips.

Pleasure travel, which accounts for 69 percent of all U.S. resident travel has increased 50 percent since 1985. Over half of all pleasure trips are to visit friends or relatives (51%), while another third (31%) are for entertainment purposes. Overwhelmingly, pleasure travelers used motor vehicles for their travels (84%). Continuing a trend from previous years, the use of a friend or relative's home for accommodations continued to rank ahead of hotels and motels, with 43 percent of travelers choosing to forego paid lodging.

According to the U.S. Department of Commerce International Trade Administration, 43.4 million international travelers visited the U.S. in 1995, down 3 percent from the previous year. This marks the third year in a row that international arrivals has declined. However, *overseas* arrivals (excluding those from Mexico and Canada - Arizona's biggest markets) grew an impressive 12 percent to 20.6 million. International tourists spent $79.7 billion in the U.S. in 1995, creating a nearly $20 billion trade surplus and making tourism America's largest service export.

Taking a closer look at one travel industry segment of interest to Cochise County, 18 percent of U.S. resident travelers said they participated in an outdoor activity in 1995, ranking "adventure travel" second behind shopping in travel activities. The Sporting Goods Manufacturers Association reports that between 1987 and 1993, there was a 110 percent increase in the number of people who hike/backpack 52 days per year or more to 799,000 people. The American Recreation Coalition notes that one in three Americans took an outdoor recreation vacation in 1995. The top activities were bicycling (20%), hiking (18%), camping (16%), wildlife viewing (15%), backpacking (12%), horseback riding (5%), mountain biking (5%) and rock climbing (4%).

Arizona and Cochise County

Tourism in the state of Arizona experienced moderate growth in 1995. Serving as the second largest revenue producing industry in the state, tourism has a dramatic economic impact. In 1995, the travel and tourism industry contributed over $8.9 billion dollars[1]. This spending created over 300,000 jobs in 1995, a 5.7 percent increase over 1994.

The impact of tourism is evident throughout the state. Each of Arizona's counties benefited from tourism in 1995. Not only did urban areas with extensively developed tourism infrastructure receive millions of dollars in tourism spending, but so did many rural areas which offer primarily natural attractions and rustic support facilities. According to the Arizona Hospitality Research and Resource Center, of the 24.5 million visitors to the state, 11.5 million concentrated their visit in Maricopa County. The Flagstaff/Grand Canyon area received 3.3 million visitors, and Pima County (Tucson) hosted 2.9 million. Cochise County totaled 3.1 million visitors in 1995.

Outdoor recreational attractions are by far the most popular visitor destination in the state. Not surprisingly, the Grand Canyon is the state's most visited site, followed by the Glen Canyon National Recreation Area. Table 1.13 outlines the top attractions in the state. According to 1996 statistics compiled by Cochise College, top Cochise County attractions was lead by the Chiracahua National Monument with 102,605 visitors, followed by Tombstone Courthouse State Historic Park with 99,016 visitors and the Coronado National Monument with 93,656 visitors. Table 1.14 shows the Cochise County attractions and visitation totals.

[1] This figure excludes international expenditures, which are currently unavailable. International visitors generated $1.3 billion in economic impact in 1994.

Table 1.13
Arizona Attractions Attendance

Historical/Cultural Attractions	Number of Visitors	National, State Parks & Recreational Attractions	Number of Visitors
1. Canyon De Chelly Nat'l Monument	1,950,695	1. Grand Canyon Nat'l Park	5,065,020
2. London Bridge	1,500,000	2. Saguaro Nat'l Park	3,169,265
3. Arizona Temple Visitor Center	1,200,000	3. Glen Canyon Nat'l Recreation Area	3,589,046
4. Phoenix Zoo	1,000,000	4. Petrified Forest Nat'l Park	945,542
5. Montezuma Castle Nat'l Monument	975,654	5. Sunset Crater Nat'l Monument	533,154
6. Rawhide	875,000	6. Organ Pipe Cactus Nat'l Monument	423,477
7. Arizona/Sonora Desert Museum	598,533	7. Lake Havasu State Park	397,693
8. Wupatki Nat'l Monument	270,646	8. Slide Rock State Park	280,649
9. Heard Museum	252,230	9. Patagonia Lake State Park	216,947
10. Hubbel Trading Post	246,884	10. Casa Grande Ruins Nat'l Monument	170,397

Source: Arizona Hospitality Research and Resource Center, 1995

Table 1.14
Cochise County Attractions
Total Visitors

Attractions		Parks	
1. U-Rock	100,000	1. Chiricahua National Monument	101,000
2. Tombstone Courthouse	99,000	2. Coronado National Monument	93,000
3. Fort Huachua Mission	80,000	3. Fort Bowie	11,000
4. Bisbee Mine Tour	55,000	4. Slaughter Ranch Museum	4,000
5. Southwestern Rail Road	42,000		
6. Ramsey Canyon	26,000		
7. Bisbee Mining Museum	23,000		
8. Amerand Foundation	20,000		
9. Rex Allen Museum	7,500		
10.Wings over Willcox	570		

Arizona residents provide the largest number of visitors to the state, followed by California in the domestic marketplace. Table 1.15 provides the place of visitor origin for Arizona as a whole and Cochise County specifically.

Table 1.15
Arizona Domestic Travel Market
1995 Place of Origin

Origin	Arizona Visitors	Percent	Cochise County Visitors	Percent
Arizona	6,149,500	25.1%	356,500	11.5%
California	5,880,000	24.0%	613,800	19.8%
Texas	1,176,000	4.8%	148,800	4.8%
New Mexico	784,000	3.2%	148,800	4.8%
Nevada	514,000	2.1%	55,800	1.8%
International	2,792,780	2.1%	N/A	N/A

Source: 1995 TravelScope: Travel Industry Association of America

Although statistics are not available for Cochise County, international visits to the state of Arizona remain an important source of tourism revenue. Mexico by far produces the largest number of international visitors, providing 1.86 million trips in 1995, or two-thirds of all international visitors. Canada ranked second with 243,000 visits, followed closely by Germany with 201,000. The United Kingdom ranked a distant fourth with 129,000 visitors. In the last year for which spending figures are available on the state and local level - 1991 - $688.3 million was spent by Mexican visitors in Arizona, while $164 million was spent in Cochise County. Most came to Arizona to shop, spending an average of $75 per party per day.[2]

The Cochise County Extension Service conducted several tourism studies in 1992 dealing with nature-based and agricultural tourism. Visitors to the San Pedro Riparian National Conservation Area (RNCA) in southwest Cochise County generate nearly $3 million per year in visitor spending, while over 81,000 out-of-county visitors spent over $1 million during visits to farm outlets and other attractions. Significantly, for both parties, average spending was approximately $55 per day for visitors to the Sierra Vista area and $130 per day for overnight visitors - but less than $7 per day for the average person on a day trip to Sierra Vista and $55 per day for farm outlet visitors. Both studies indicate the large majority of visitors do not stay overnight in the County. This compares with an average expenditure per person of $104 per day in Arizona. The average Arizona visitor stays 3.56 days within the state.

[2] Arizona Cooperative Extension Service

Finally, although figures are not available for Cochise County, over 66 percent of all Arizona visitors arrive in the state by motorized vehicle. Airplane arrival primarily at the state's commercial service airports provides 31.3% of travel transportation, with the balance being on other modes such as train or bicycle.

Because seven of the eight airports in Cochise County are general aviation facilities, additional data was reviewed from the National Air Transportation Association (NATA) to gain a perspective of the levels of visitors arriving in Cochise County by general aviation aircraft. According to the NATA, approximately 6 percent of the 3.1 million visitors would arrive by general aviation aircraft which represents about 186,000 visitors per year at all of Cochise County airports. Based on current activity levels at the eight airports within the County, it is estimated that approximately 5,200 visitors per year arrive or pass through the Cochise County (Willcox) Airport.

A recent tourism study for Cochise County recommends that the Willcox Visitor Center become a place to educate visitors to the region in regard to all of the Cochise County attractions. It is logical to relate the airport to this role as well. If the County develops the visitor center as recommended, ground transportation to and from the airport will be a vital component to link the airport to the visitor center. A fly and camp area could be established at the airport to serve as the gateway to Cochise County attractions for flying patrons.

INVENTORY SUMMARY

The information provided in the Inventory Chapter provides the foundation upon which the remaining elements of the Airport Master Plan are generated. Information on current airport facilities and utilization will serve as a basis for the development of aviation demand forecasts.

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